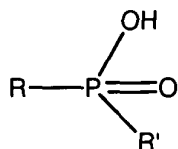


In the claims

1-65. (cancelled).

66. (new) A pellet composition comprising a polyhydroxyalkanoate (PHA) and a thermal stabilizer.

67. (new) The pellet composition of claim 66 wherein the thermal stabilizer is an organophosphorous compound having the structural formula:



where R' is R or OH, and R is a branched or unbranched saturated C₁-C₃₀ group, a branched or unbranched unsaturated C₂-C₃₀ group, a C₆-C₃₀ aromatic group, or a saturated or unsaturated C₆-C₃₀ cycloaliphatic group.

68. (new) The pellet composition of claim 66 comprising polyhydroxyalkanoate (PHA) having a weight average molecular weight (M_w) greater than about 435,000.

69. (new) The pellet composition of claim 67, wherein the organophosphorous compound further contains one or more O, N, or S atoms in the alkyl chains.

70. (new) The pellet composition of claim 67, wherein the organophosphorous compound is substituted with one or more hydroxyl, halo, carboxylic acid or ester, cyano, aryl, amino, hydroxylamino, mono-, di-, or trialkyl amino, or phosphonic acid groups.

71. (new) The pellet composition of claim 67, wherein the organophosphorous compound is cyclohexylphosphonic acid, 1-cyclohexenylphosphonic acid, 1-

hydroxycyclohexenylphosphonic acid, 1-hexanephosphonic acid, 1-hydroxyethylidene-1, 1-diphosphonic acid, or dicyclohexylphosphonic acid, 2,4,4-(trimethylpentyl) cyclohexylphosphonic acid.

72. (new) The pellet composition of claim 66, further comprising an oxide, hydroxide, or carboxylic acid salt of a metal from Groups I to V of the Periodic Table.

73. (new) The pellet composition of claim 66, further comprising calcium stearate, magnesium stearate, zinc stearate, or zinc oxide.

74. (new) The pellet composition of claim 66, further comprising a diphosphonic acid.

75. (new) The pellet composition of claim 74 wherein the diphosphonic acid is 1-hydroxyethylidene-1, 1-diphosphonic acid.

76. (new) The pellet composition of claim 66, further comprising a fatty acid salt of a metal from Groups I to V of the Periodic Table.

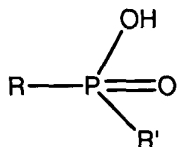
77. (new) The pellet composition of claim 66, further comprising a weak organic base selected from fatty acid amides.

78. (new) A method of producing a PHA film comprising melting a PHA pellet comprising a PHA and a thermal stabilizer and forming the melt into a film.

79. (new) A method of producing a PHA product by extrusion, molding, coating, spinning or calendaring of a polyhydroxyalkanoate (PHA) and a thermal stabilizer.

80. (new) A method of making a pellet composition comprising melting a PHA powder in the presence of a thermal stabilizer.

81. (new) The method of claim 80 wherein the thermal stabilizer is an organophosphorous compound having the structural formula:



where R' is R or OH, and R is a branched or unbranched saturated C₁-C₃₀ group, a branched or unbranched unsaturated C₂-C₃₀ group, a C₆-C₃₀ aromatic group, or a saturated or unsaturated C₆-C₃₀ cycloaliphatic group.

82. (new) The method of claim 80 wherein the PHA powder comprises a PHA having a Mw greater than about 480,000.

83. (new) The method of claim 80, wherein the PHA powder further comprises a material selected from the group consisting of boron nitride and acetylbutylcitrate.

84. (new) The method of claim 81, wherein the organophosphorous compound further contains one or more O, N, or S atoms in the alkyl chains.

85. (new) The method of claim 81, wherein the organophosphorous compound is substituted with one or more hydroxyl, halo, carboxylic acid or ester, cyano, aryl, amino, hydroxylamino, mono-, di-, or trialkyl amino, or phosphonic acid groups.

86. (new) The method of claim 81, wherein the organophosphorous compound is cyclohexylphosphonic acid, 1-cyclohexenylphosphonic acid, 1-hydroxycyclohexenylphosphonic acid, 1-hexanephosphonic acid, 1-hydroxyethylidene 1, 1-diphosphonic acid, or dicyclohexylphosphonic acid, 2,4,4-(trimethylpentyl)cyclohexylphosphonic acid.

87. (new) The method of claim 80, wherein the PHA powder further comprises an oxide, hydroxide, or carboxylic acid salt of a metal from Groups I to V of the Periodic Table.

88. (new) The method of claim 80, wherein the PHA powder further comprises calcium stearate, magnesium stearate, zinc stearate, or zinc oxide.

89. (new) The method of claim 80, wherein the PHA powder further comprises a nucleant.

90. (new) The method of claim 80, wherein the organophosphorous compound is a diphosphonic acid.

91. (new) The method of claim 90, wherein the diphosphonic acid is 1-hydroxyethylidene-1, 1-diphosphonic acid.

92. (new) The method of claim 80, wherein the PHA powder further comprises a fatty acid salt of a metal from Groups I to V of the Periodic Table.

93. (new) The method of claim 80, wherein the PHA powder further comprises a weak organic base selected from fatty acid amides.

94. (new) A pellet composition produced by melting a PHA powder in the presence of a thermal stabilizer.

95. (new) A blown or cast free-standing film comprising PHA, wherein the PHA has a M_w greater than about 420,000 and the film is made from the pellet composition of claim 66.

96. (new) The film of claim 95, wherein the film is a blown film.

97. (new) The film of claim 96, wherein the draw ration of the blown film is between about 2 and 7.

98. (new) The film of claim 96, wherein the film has a percent elongation at break greater than 65%.

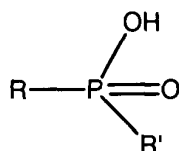
99. (new) The film of claim 96, wherein the film has a percent elongation at break greater than 75%.

100. (new) The film of claim 96, wherein the film has a tensile strength at break greater than 50 Mpa.

101. (new) The film of claim 96, wherein the tensile strength at break is greater than 75 Mpa.

102. (new) A method of producing a blown or cast free-standing film, comprising melting a pellet composition comprising PHA and a thermal stabilizer.

103. (new) The method of claim 102 wherein the thermal stabilizer is an organophosphorous compound having the structural formula:



where R' is R or OH, and R is a branched or unbranched saturated C₁-C₃₀ group, a branched or unbranched unsaturated C₂-C₃₀ group, a C₆-C₃₀ aromatic group, or a saturated or unsaturated C₆-C₃₀ cycloaliphatic group.

104. (new) The method of claim 102, wherein the film is produced by a continuous process.

105. (new) The method of claim 102, wherein the melt is formed into a film by film blowing.

106. (new) The method of claim 102, wherein the PHA in the pellet has a M_w greater than about 470,000, and wherein the PHA in the film is a M_w greater than about 420,000 Daltons.

107. (new) The method of claim 103, wherein the organophosphorous compound further contains one or more O, N, or S atoms in the alkyl chains.

108. (new) The method of claim 103, wherein the organophosphorous compound is substituted with one or more hydroxyl, halo, carboxylic acid or ester, cyano, aryl, amino, hydroxylamino, mono-, di-, or trialkyl amino, or phosphonic acid groups.

109. (new) The method of claim 103, wherein the organophosphorous compound is cyclohexylphosphonic acid, 1-cyclohexenylphosphonic acid, 1-hydroxycyclohexenylphosphonic acid, 1-hexanephosphonic acid, 1-hydroxyethylidene-1, 1-diphosphonic acid, or dicyclohexylphosphonic acid, 2,4,4-(trimethylpentyl) cyclohexylphosphonic acid.

110. (new) The method of claim 102, wherein the pellet composition further comprises an oxide, hydroxide, or carboxylic acid salt of a metal from Groups I to V of the Periodic Table.

111. (new) The method of claim 102, wherein the pellet composition further comprises calcium stearate, magnesium stearate, zinc stearate, or zinc oxide.

112. (new) The method of claim 103, wherein the organophosphorous compound is a diphosphonic acid.

113. (new) The method of claim 112, wherein the diphosphonic acid is hydroxy-ethylidene-1, 1-diphosphonic acid.

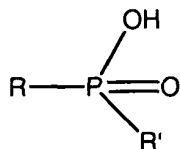
114. (new) The method of claim 102 wherein the pellet composition further comprises a fatty acid salt of a metal from Groups I to V of the Period Table.

115. (new) The method of claim 102 wherein the pellet composition further comprises a weak organic base selected from fatty acid amides.

116. (new) A blown or cast free-standing film produced by melting a pellet composition comprising PHA and a thermal stabilizer.

117. (new) A method of inhibiting the thermal degradation of PHA comprising combining PHA with a thermal stabilizer selected from:

a. an organophosphorous compound having the following structural formula:



where R' is R or OH, and R is a branched or unbranched saturated C₁-C₃₀ group, a branched or unbranched unsaturated C₂-C₃₀ group, a C₆-C₃₀ aromatic group, or a saturated or unsaturated C₆-C₃₀ cycloaliphatic groups; and

b. an oxide, hydroxide, or carboxylic acid salt of a metal from Groups I to V of the Periodic Table; or mixtures thereof.

118. (new) The method of claim 117 wherein the organophosphorous compound further contains one or more O, N, or S atoms in the alkyl chains.

119. (new) The method of claim 117, wherein the organophosphorous compound is substituted with one or more hydroxyl, halo, carboxylic acid or ester, cyano, aryl, amino, hydroxylamino, mono-, di-, or trialkyl amino, or phosphonic acid groups.

120. (new) The method of claim 117, wherein the organophosphorous compound is cyclohexylphosphonic acid, 1-cyclohexenylphosphonic acid, 1-hydroxycyclohexenylphosphonic acid, 1-hexanephosphonic acid, 1-hydroxyethylidene-1, 1-diphosphonic acid, or dicyclohexylphosphonic acid, 2,4,4-(trimethylpentyl) cyclohexylphosphonic acid.

121. (new) The method of claim 117, wherein the thermal stabilizer is calcium stearate, magnesium stearate, zinc stearate, or zinc oxide.

122. (new) The method of claim 117, wherein the thermal stabilizer comprises cyclohexyl phosphonic acid and zinc stearate.

123. (new) The pellet composition of claim 66 further comprising a material selected from the group consisting of boron nitride and acetylbutylcitrate.

124. (new) The method of claim 78 wherein the pellet composition further comprises a material selected from the group consisting of boron nitride and acetylbutylcitrate.


125. (new) The blown or cast free-standing film of claim 95 wherein the pellet composition further comprises a material selected from the group consisting of boron nitride and acetylbutylcitrate.

126. (new) The method of claim 103 wherein the pellet composition further comprises a material selected from the group consisting of boron nitride and acetylbutylcitrate.

127. (new) The method of claim 117 wherein the PHA and thermal stabilizer are combined with a material selected from the group consisting of boron nitride and acetylbutylcitrate.

Support for the new claims 66-127 is found in claims 1-65 as originally filed and at p. 17, line 9 to p. 24, line 7 of the specification.

Respectfully submitted,



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